Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	785	(fiber or fibre) and (fc adj al or fc-al)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:28
L2	764	1 and loop	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 10:48
L3	32	2 and analyser	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:00
L4	196	2 and analy$4	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:01
L5	0	4 and 709/204.ccls.	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:04
L6	5	4 and 709/224.ccls.	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:14
L7	42	(("20030056048") or ("20020008427") or ("20020044561") or ("20020010883") or ("20020043877") or ("20020043877") or ("20020004242") or ("20020129182") or ("20020129232") or ("20020159311") or ("6658504") or ("6115814") or ("5956665") or ("6188973") or ("5892973") or ("5790782") or ("6061244") or ("6050658") or ("5183749") or ("5814762") or ("5483423") or ("5313369")).PN.	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	OFF	2005/06/06 11:27

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L8	42	"20030056048" "20020008427" "20020044561" ("20020010883" "20020043877" "20020043877" "20020004242" "20020129182" "20020129232" "20020159311" "6658504" "6115814" "5956665" "6188973" "5892973" "5790782" "6061244" "6050658" "5183749" "5814762" "5483423" "5313369"). pn.	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:27
L9	11	"6614796".pn. or "6199105".pn. or "6148414".pn. or "6330690". pn. or "6000020".pn.	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:28
L10	53	8 or 9	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:28
L11	12	10 and (fc adj al or fc-al)	US-PGPUB; USPAT; EPO; DERWENT; IBM_TDB	OR	ON	2005/06/06 11:29

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New FC-AL technology ushers...

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SAN/NAS TECHNICAL TIPS
New FC-AL technology ushers in "SBOD"
Rick Cook
15 Dec 2003
Rating: -4.50- (out of 5)

SITE SPONSOR   Many SANs use **FC-AL**   EXPLORE THIS AREA: RICH-MEDIA ADVERTISEMENT
(Fibre Channel Arbitrated Loop) within the storage arrays to connect the actual storage devices (disks or tapes) to the controllers. **FC-AL** is a robust, relatively inexpensive technology, but essentially daisy-chains up to 126 drives on one controller, which in turn limits performance and complicates diagnosing problems.

To get better performance, a number of array manufacturers are adopting a technology called Inspeed from Vixel (recently purchased by Emulex) which puts in what amounts to an **FC-AL** switch and allows the controller to establish point-to-point connections between a storage device and the controller. This provides higher bandwidth and higher overall performance. Vixel calls the resulting architecture a Switched Bunch of Disks (SBOD), playing off the name of JBOD (Just a Bunch of Disks) storage architecture.

While Inspeed doesn't offer the highest possible performance, it does offer higher performance than regular **FC-AL** arrays at a price that is only somewhat higher than **FC-AL**. This makes it attractive to for middle-range storage solutions that need more bandwidth. A number of companies, including Fujitsu and Sun have adopted the Vixel technology for mid-range storage arrays.

The technique is described in a white paper at <u>Vixel</u>.

Rick Cook has been writing about mass storage since the days when the term meant an 80K floppy disk. The computers he learned on used ferrite cores and magnetic drums. For the last twenty years he has been a freelance writer specializing in storage and other computer issues.

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